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March 3, 1951

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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



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See Page 139

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MEDICINE

Antibiotics Aid Brucellosis

Fever leaves patients in three to five days when they are treated with either terramycin, aureomycin, and chloramphenicol or chloromycetin. Aches and pains leave slower.

► **PATIENTS** with brucellosis get over their fever in three to five days when treated with one of three so-called mold drugs, terramycin, aureomycin and chloramphenicol, or chloromycetin. Headaches, other aches and pains and weakness disappear more slowly.

These results of a trial of the three drugs are reported by Drs. John H. Killough, Gordon B. Magill and Richard C. Smith, of the U. S. Naval Medical Research Unit No. 3. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Feb. 24). The trials were made in Cairo, Egypt, with the cooperation of the Egyptian Ministry of Health.

Brucellosis is also known as undulant fever and Malta fever. It is a disease of cows, goats and swine as well as man. Humans get it from unpasteurized milk and milk products of infected cows or goats and from infected hog's meat. It is a long-drawn out illness with frequent relapses. It is caused by a germ named *brucella*.

MEDICINE

Drug Effective in TB

► **GOOD RESULTS** with a new weapon against tuberculosis are reported by Drs. Alfred G. Karlson and Joseph H. Gainer of the division of experimental medicine, Mayo Foundation, Rochester, Minn.

The drug has already been given to patients but so far the successes reported are in guinea pigs and mice.

The new weapon is a kind of mold drug called viomycin. It is related to streptomycin. It gets its name because of the violet color of cultures of the organism that produces it.

Viomycin is effective against tuberculosis germs that are resistant to streptomycin as well as against those sensitive to streptomycin, the guinea pig trials show. And it was fully as effective as streptomycin against the streptomycin-sensitive strain of TB germs.

Trial of the drug in patients showed some signs of damage to kidneys and the vestibular mechanism in the ear. These reactions were not severe enough to stop further trial of the drug. Patients given the drug so far, however, had such extensive tuberculosis that no conclusions could be made on the effectiveness of viomycin as a remedy. These trials on patients were reported by Drs. C. A. Werner, R. Tompsett,

Streptomycin was the first drug that gave genuine promise of effective treatment. It has been used alone and combined with a sulfa drug with good immediate results and with significant reduction in relapses. Toxicity, however, was serious, Dr. Killough and associates point out.

The three newer antibiotics, terramycin, aureomycin and chloramphenicol, give "excellent" results with only minor toxic effects from aureomycin. These consisted of loss of appetite, nausea and occasional vomiting.

Relapses, however, also occurred after treatment with these drugs. They cannot therefore be considered cures. The three doctors are now trying to find a combination of two drugs or a different-sized dose or length of treatment that will both relieve the symptoms and prevent relapses by routing the germ of the disease from the patient's body.

Science News Letter, March 3, 1951

C. Muschenheim and W. McDermott of Cornell Medical College.

Viomycin was obtained from an organism called *Streptomyces floridiae* by five researchers at Parke, Davis and Co., Detroit, and from another *Streptomyces*, called *punicus*, by 12 researchers at Charles Pfizer and Co., Brooklyn, N. Y.

This new antibiotic drug is not effective against many germs, according to test tube trials. But, the Mayo scientists report, in tuberculous guinea pigs it caused a marked slowing and healing of the disease which was progressive when treatment was started.

Science News Letter, March 3, 1951

GENERAL SCIENCE

To Double the Funds For Defense Research

► **THE DEFENSE DEPARTMENT** hopes to double the money it is spending on research and development to a sum in excess of one billion dollars. This would be almost 60% of all the money spent on research and development in this nation.

This was the statement of Dr. Eric A.

Walker, executive secretary of the Defense Department's Research and Development Board. He spoke as a guest of Watson Davis, director of Science Service, on Adventures in Science, heard over the Columbia network.

All this money must be spent, said Dr. Walker, on what is essentially a compromise forced upon the country by the pressure of world events.

During the last war, Dr. Walker pointed out, new weapons, such as the atomic bomb, radar and the proximity fuze had been worked out. However, basic research had been neglected and there were many areas in which theory was insecure.

"It was obvious," said Dr. Walker, "that these gaps had to be filled and that basic research had to be extended to provide a foundation for further developments and new weapons."

In 1945, he went on, it seemed safe to assume that the armed forces had 15 years of peace in which to do this job. But now the situation is different and we should be ready for war at a much earlier date—1955 or even 1952. This poses a problem.

"Are we once more to buy replicas of the weapons of the last war, or should we have new weapons which can again put us one step ahead of our potential enemies," asked Dr. Walker. "The development of these new and better weapons has not been completed. The blueprints are not ready. The best we can do is compromise—buy some of the old weapons now and rush through our development program so that within the next year or so we can be prepared to build and issue to our forces the best weapons available."

Dr. Walker also pointed to the contribution the universities of the nation could make to defense in both research and development.

Science News Letter, March 3, 1951

INVENTION

Give Yourself Haircut With New Invention

► **"GIVE YOURSELF** a haircut" is the apparent advice of inventor Jacob A. Altman, of Los Angeles, who received a patent on a device which makes the home haircut possible. Patent 2,542,450 was his award.

It might be described as a comb-like device with teeth long enough and curved enough to fit over the entire back of the head. The hair projects outwardly between the teeth. After placement, it is held in position by neck and forehead straps.

Over this comb-frame is another, hinged to the first at its lower edge, and angled out to any desired amount by a thumb-screw at the top. It is this outer comb-frame that guides the cutting blade and causes it to cut close low down on the neck and not so close toward the top of the head.

Science News Letter, March 3, 1951

MEDICINE

Device Resuscitates Baby

Simple apparatus on principle of oxygen-powered atomizer helps keep infants from suffocating. Provides clear airway and plenty of oxygen.

► A SIMPLE apparatus developed on the principle of an oxygen-powered atomizer is helping save new babies from suffocating to death, Drs. John P. Fletcher and Joslyn W. Rogers of the University of Toronto report. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Feb. 24).

The apparatus has a slender tube which is put down the baby's throat and windpipe. An inner tube is used to suck out mucus or other material clogging the airway. Then, without removing the main tube, the doctor can deliver oxygen into the windpipe at a safe pressure that lets the baby breathe it into his lungs.

The apparatus thus provides two of the three things needed to resuscitate the baby: a clear airway and plenty of oxygen. The third thing the Canadian physicians advise is gentle handling.

Over a period of three years these resuscitation efforts seem to have played a

considerable part in the steady drop of deaths of babies in a large series of deliveries, the physicians report.

Every baby has a deficiency of oxygen during or right after birth, they point out. In the great majority of cases this is relieved by the prompt beginning of adequate breathing. But some babies cannot start breathing at once. This may be due to many causes, ranging from too much anesthetic given the mother to defects of the baby's heart and kidneys at birth.

Sometimes the baby has begun to make breathing movements and its lungs have started to expand before the head is born. This may happen in prolonged, difficult labors. Then the expanding lungs can suck in a mixture of air and amniotic fluid.

Depending on the amount of such material, and how fast the efforts to resuscitate are started, the fluid will either block the windpipe or get into the smaller bron-

chioles of the lungs and cause permanent multiple obstruction to the breathing passages.

If the infant fails in his first efforts to breathe, the want of oxygen may depress the breathing center in the brain. Congestion, dropsy and bleeding into various tissues follow. The depressed breathing aggravates the oxygen lack, setting up a vicious cycle that leads to death if not checked.

Severe oxygen lack for eight minutes may result in permanent damage to parts of the brain, especially those involved in mental activity. Other parts of the brain can live for 20 to 30 minutes with severe oxygen want. Consequently babies that survive severe lack of oxygen may have epilepsy or mental deficiency from the damage to the more vulnerable parts of the brain.

Science News Letter, March 3, 1951

AERONAUTICS

Autopilot Guides Jets In Loops and Rolls

► IMPORTANT among newly developed equipment for speedy jet-propelled fighter planes is an improved autopilot that will guide the craft through loops and rolls, and also an electrically-heated windshield to provide clear vision regardless of weather conditions.

Automatic pilots have been used for several years on conventional planes, and also on jet fighters where they are particularly important because they "react" more quickly than the human pilot. This new improved "co-pilot" will guide the jet-plane through loops, rolls and other combat maneuvers with split-second accuracy, it is claimed.

It was developed by scientists of Westinghouse Electric Corporation in cooperation with the Control Equipment Branch of the U. S. Air Force. Described as the first automatic pilot with "unlimited maneuverability," it will be installed in the F94C fighter plane being built for the Air Force by Lockheed Aircraft Corporation.

Its ability to provide complete maneuverability, according to Dr. Clinton R. Hanna of Westinghouse, is due to the use of three "non-tumbling" gyroscopes that are locked in the plane and stay on the job no matter what evasive tactics the plane employs. Conventional autopilots contain gyros that would "tumble" if the pilot put his plane through intricate maneuvers. This would send the aircraft into dangerous gyrations.

The clear-vision windshield is a development of the Libbey-Owens-Ford Glass Company. It is made of glass, an inch and a half thick, which is heated by electricity passing from electrodes at the edges through an invisible stannic oxide film with which the inside of the glass is coated. It will be used on the Scorpion F-89, now in full production at the Northrop Aircraft's plant at Hawthorne, Calif.

Science News Letter, March 3, 1951



COLD-PROOF "BRAIN"—The "thing" in the box is an electric computer mechanism to be used in the Convair B-36 intercontinental bomber where it must function under the extreme temperature conditions found at high operating altitudes. It is being wheeled for testing into a chamber where the thermometer remains at a maximum of 65 degrees below zero.

RADIO

Gadgets Would Aid Enemy

Your TV antenna, electric razor, and other electric gadgets would serve as homing device for guided missiles or enemy bombers in case of attack.

► TO KEEP enemy bombers or guided missiles from help in finding their target, electromagnetic radiations sent out by such devices as electric razors and garage door openers should be controlled or shut down, if necessary.

This is the position of the Defense Department in asking Congress to give the President control over a large chunk of the possible radiation frequencies that could be used for homing, or for long-range navigation. Hearings on an amendment to the Communications Act of 1934, giving this authority, will be held within the next few weeks. Two days of hearings were held recently.

Present law gives the President control over radio broadcasting stations, a most effective means of pinpointing a city's location. Many devices in common use send out electromagnetic radiations, so the U. S. is peppered with "radio stations." The antenna for a TV set, for instance, sends out radiations as well as receiving it to give a television picture.

When a diathermy, or heat treatment, machine is turned on, the radiations sent out can be detected around the world. You can "hear" this type of radiation as static on your radio, especially on older models, or you can "see" it when your television picture is not clear.

From 10 kilocycles to 100,000 megacycles is the range over which control is requested. Commercial radio stations use frequencies between 550 and 1500 kilocycles. Short wave broadcasts use slightly higher frequencies, while television, two-way police

radios and other short-distance communications devices use very high frequencies, above 30,000 kilocycles.

A kilocycle is a measurement of radio frequency denoting 1000 electrical impulses per second, and a megacycle is 1000 kilocycles.

Science News Letter, March 3, 1951

ARCHAEOLOGY

Oldest Farmers' Bulletin Unearthed in Iraq

► THE WORLD'S FIRST known farmers' bulletin has just been found by an archaeological expedition of the University of Chicago Oriental Institute and the University Museum of Philadelphia.

Written in cuneiform script in the Sumerian language on a clay tablet, the instructions to farmers are believed to be 3,700 years old, Dr. Donald E. McCown, field director of the expedition, announced. The find was made in Nippur, Iraq.

Authority for the instructions was ascribed to the god of the farmers, Ninurta, who gave specific instructions for obtaining the best crop all the way from plowing the furrows and planting the seed "two fingers deep," to scaring away the birds and field mice and cutting the grain at the right moment before it should bend under its own weight.

Irrigating a fourth time, the farmer was told, would net an extra yield of one "cup" in every ten.

Science News Letter, March 3, 1951

Question Box

ARCHAEOLOGY

How long ago was the first farmer's bulletin put out? p. 132.

ASTRONOMY

Where will scientists listen for radio signals from the moon? p. 133.

ENGINEERING

How can a house be made of molasses? p. 135.

MEDICINE

How can newborn babies be resuscitated? p. 131.

What is viomycin good for? p. 130.

What remedy has been found for brucellosis? p. 130.

OCEANOGRAPHY

Where have bacteria lived for several million years? p. 138.

ORNITHOLOGY

Where was a bird found that has been believed to be extinct since 1625? p. 139.

PSYCHOLOGY

What is menticide? p. 140.

RADIO

Why may your electric razor be forbidden in case of enemy attack? p. 132.

Photographs: Cover, American Museum of Natural History; p. 131, GE; p. 133, Defense Department; p. 135, Bell Aircraft; p. 138 and p. 139, Roger Revelle.

● RADIO

Saturday, March 10, 1951, 3:15-3:30 p.m., EST.
"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

D. W. Nyrop, Administrator, Civil Aeronautics Administration, will discuss "Aviation's Place in National Defense."

Tooth decay is said to be civilized mankind's most common disease.

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ASTRONOMY

New Radio Telescope

Aluminum paraboloidal instrument will be used to listen in on radio signals from the sun, moon, and stars. Will aid in predicting radio blackouts or good reception.

► A NEW "radio telescope" 50 feet across has just been installed on top of one of the Naval Research Laboratory buildings in Washington. It is the most versatile instrument of its kind developed to date.

Shaped like a salad bowl, this aluminum reflector will be used to study radio signals from the sun, moon and stars. It is expected to help radio forecasters predict more accurately when broadcasts will be blacked out or when shortwave radio signals will come through clearly.

The reflector consists of 30 pie-shaped sections, all of solid aluminum machined to a tolerance of better than 1/32 of an inch. It is the uniform smoothness of the aluminum surface that makes the telescope so versatile.

The paraboloidal instrument can be used to trap radio signals from a fraction of an inch in wavelength up to several feet. It will pin-point the source of stellar noises down to seven or eight minutes of arc, the highest accuracy obtained to date with a single beam.

This concave, high-resolution reflector will pick up noises outside our atmosphere at wavelengths of three, ten and thirty centimeters. Experts at the Naval Research Laboratory will use it to study the composition of the sun's atmosphere; times and nature

of radio emissions from the sun, moon and stars; cause and nature of solar flares.

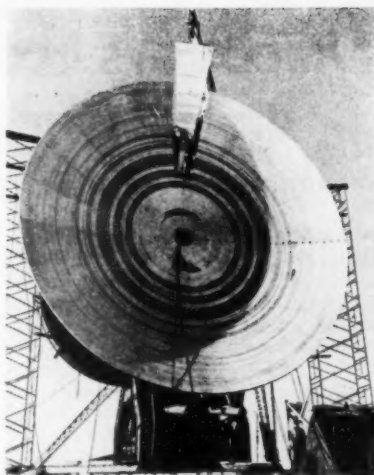
The 50-foot aluminum disk weighs about 14 tons. It is held in place by a supporting ring 35 feet in diameter mounted on a big yoke fastened to one of the Navy's five-inch gun mounts. At the focus of this reflector is a horn to collect the energy. These together make up the antenna system.

The reflector can move vertically from the zenith to five degrees below the horizon, scanning the entire sky. Horizontally it can be rotated a full circle. It can automatically track the sun in its path across the sky, or follow the stars as they move across the heavens.

This radio telescope is not the world's largest as a 200-foot stationary reflector in Manchester, England, is used to study cosmic noises at low frequencies only. But it is by far the most versatile reflector yet built.

Radio telescopes have to be larger than optical telescopes, the largest of which is 200 inches across, because the wavelengths of radio waves are so much longer than those of visible light. Just as an astronomer uses an eyepiece, the radio astronomer uses an extremely sensitive radio receiver to "look at" the sun or stars.

Science News Letter, March 3, 1951



RADIO TELESCOPE — Workmen are lowering into place the last section of the 600-inch instrument with which Naval Research Laboratory scientists will study radio "signals" from the sun, moon, and stars.

though it could check the growth of one kind of bacteriophage, it showed little activity against bacteria and fungi and no activity against influenza in mice or MM virus in the test tube.

Science News Letter, March 3, 1951

ASTRONOMY

Comet Expected Back After Seven Years

► FAINT Comet Arend-Rigaux, the second comet discovered this year, will again visit the vicinity of the earth about seven years from now. It follows a closed, elliptical path around the sun and thus is a periodic comet.

Comet 1951 B was closest to the sun last Dec. 17, calculate Joseph Brady and Nevin Sherman. Their figures have been reported by Dr. Leland E. Cunningham of the University of California, America's outstanding authority on the orbits of comets, to Harvard Observatory, astronomical clearing house in the western hemisphere.

The comet is fading rapidly and will probably be of thirteenth magnitude the middle of March as contrasted with eleventh magnitude when discovered early in February. By this time it will have moved from the constellation of Gemini, the twins into Cancer, the crab.

The elements of the comet are similar to those of periodic Comet Taylor, but this comet is not scheduled to be visible in 1951.

Science News Letter, March 3, 1951

MEDICINE

Antibiotic Kills Amebas

Fumagillin, which looked almost like a dud when it was first discovered, may be valuable remedy against amebic dysentery.

► A NEW mold chemical that looked almost like a dud when first discovered may turn out to be a valuable remedy for amebic dysentery, or amebiasis as doctors call the disease.

The new antibiotic is called both Fumagillin and H-3. It is an extremely powerful killer of amebas, the germs that cause amebic dysentery. Drs. Max C. McCowen, Maurice E. Callender and John F. Lawlis, Jr., found in trials at the Lilly Research Laboratories in Indianapolis.

Diluted to one part in over 131 million, H-3 is still capable of checking amebas that are mixed with bacteria from the intestinal tract. The activity of H-3 is considered to

be direct on the amebas, since the bacteria did not affect their growth.

Four doses of crystalline H-3 when given over two days were enough to wipe out amebic dysentery germs from rats, the Lilly researchers found.

H-3 is the first mold drug or ameba killer that has shown such effectiveness in the laboratories, the researchers declare (SCIENCE, Feb. 23).

"H-3 should possibly be one of the best direct-acting amebicides (ameba killers)," they state.

H-3 comes from an Aspergillus organism. It was isolated by Drs. F. R. Hanson and E. Eble of the Upjohn Company. Al-

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GENERAL SCIENCE

Discovers Rock Faults

Other Talent Search winners study nutrition, mountains, fish, color perception and armament for supersonic aircraft. Plan careers in science.

► DISCOVERY of two rock faults not recorded in geological surveys of his home county was accomplished by 16-year-old John M. Dennison, a young Keyser High School senior who wants to become a geologist. He was one of the top 40 winners in the Tenth Annual Science Talent Search.

Mr. Dennison made a thorough geological survey of Mineral County. He collected samples of all the different kinds of rocks to be found in the county—69 in all—and determined to which geologic series and periods they could be assigned.

The two faults which Mr. Dennison discovered are along the north branch of the Potomac River, just outside of Keyser, W. Va. He discovered these during his explorations of over 100 miles in the county, mostly by foot and bicycle.

Mr. Dennison used the rocks he collected to construct a geologic column. In a glass column some 32 inches high he made a model of 12,000 feet of rock strata of his home county.

The young scientist also explored and mapped four caves in the county, but, he says, there are several more that have been called to his attention. In addition, he has made a collection of about 50 fossil types from the middle and lower Devonian rocks of the county.

Mr. Dennison will take his geologic column to Washington on March 1, when he and the 39 other winners will gather for the five-day Tenth Annual Science Talent Institute.

Dog Foods Fed to Rats

The price label on a can of dog food makes little difference to a rat. Sixteen-year-old Derrell L. Chambers drew this conclusion when he fed ten different brands of dog food to ten rats of the same litter.

The rat which gained the most weight received one of the cheapest dog foods—9½ cents a can, and the second best food was also the most expensive—15 cents. An 11th rat of the litter was fed a variety of mixed fresh foods and came out in second place, just above the rat with the most expensive diet.

Mr. Chambers is a senior at Paso Robles, Calif., High School. He wants to become the curator of a zoo when he finishes his education.

His 11 rats came from a male and female which he purchased. He kept the young rats in individual cages and fed them identical amounts of food and water.

The young scientist also concluded that

the list of ingredients printed on the can labels made little difference in how his rats grew. The rat which ate the food with the longest list of ingredients came out sixth best, while the winner had only wheat bran added to the basic ingredients common to all brands.

All foods, he found, produced growth and varied only in the amount of growth. There was no evidence in eyes, nostrils or fur of any major deficiency.

Climbs Highest Mountain

Climbing the highest mountain in the United States, Mount Whitney, as well as several others above 14,000 feet, has been only part of the field work 17-year-old Carol L. DeDecker of Independence, Calif., has done in her study of the geology of the area in which she lives.

She has travelled over the Sierras, one of the highest and wildest areas in the nation, in order to find out about the geological history of that section.

The young scientist, who would like to do research work in geology when she completes her education, described the effects of glaciers on the area she covered by foot. The Whitney area, she found, appears to be near the southern limit of glaciation.

Miss DeDecker has spent the last eight summers in the high country of the Sierra Nevada.

At first glance, she said, the Sierra appears to be a jumbled mass of steep canyons and jagged pinnacles. A definite pattern, the old topography now carved glacially, becomes apparent only after prolonged acquaintance and views from many angles.

Miss DeDecker, a senior at the Owens Valley High School, has found that her mountain trips have been educational in all of the natural sciences. She calls it a small beginning in a field which she is seriously considering as her major in college.

Pipefish Habits Studied

A young scientist fisherman claims to have set a record for the largest northern pipefish ever caught and, like all good fish stories, this one has a photograph to prove the fisherman's contention.

The fisherman is 17-year-old James B. Stewart, who has made a detailed study of the northern pipefish and its habits. The pipefish, long thin things related to the seahorse, are characterized by their cover-

ing of bony plates and their snouts. He found his specimens in Long Island Sound.

The ones Mr. Stewart caught averaged about three inches in length. However, he caught one which measured ten and a half inches. The Harrison, N. Y., High School senior claims that this is about an inch longer than the greatest authenticated length he has been able to find in the records.

Mr. Stewart caught his fish lurking at the surface of bays in clumps of Irish moss or floating eel grass. He found this to be very effective camouflage for the pipefish. They need this because the fish are clumsy and not very fast when alarmed. Their method of escape, he said, was to attempt a wiggling rush, not unlike an eel, but even then it was easy to catch them in his hand.

The young scientist wants to be an engineer.

Colors That Aren't There

Study of black and white tops, which, when spun, seem to produce colors, has convinced 17-year-old Paul L. Sieffert that the colors don't really exist. Mr. Sieffert is a senior at North Catholic High School, Pittsburgh, Pa.

The young scientist, who wants to be an aerodynamicist, said that his experiments showed that the colors one sees when the tops are spun exist only subjectively, that is in the mind of the viewer.

He first made a large number of disks with different patterns and proportions of black and white. He found that he could get the same supposed color with different amounts of black and white and different colors with the same proportions of black and white merely by changing the speed of rotation of the disks.

Taking his disks which produced color—which they did at moderate speeds—he increased the speed. This did not change the colors produced, but did move the bands of various colors outwards toward the rims of the disks. He found in these experiments that the color was subjective: not actually there.

Mr. Sieffert turned a stroboscopic light on his whirling disks. Thus he was able to regulate the light so he could see the color in one half of the disk and how the black and white patterns seemed to the eye to be overlapping on the other half.

He concluded that eye fatigue produced the color sensation, and believes that further experiments, including color photographs, should support this conclusion.

Rockets for Supersonic Planes

A new armament system for supersonic aircraft, designed by 17-year-old Conrad V. Chester, Roslyn Heights, N. Y., will have an edge over present systems in range, power and versatility, its designer claims.

The system consists of rockets, which he designed himself, and a radar-controlled automatic firing device.

The young scientist, who is a senior at Roslyn High School, claims that a direct hit by one of his missiles would knock down a bomber. It is comparable, he says, to a 4-inch strato-gun shell, and a plane armed in this manner would be a flying anti-aircraft battery without the terrific weight of conventional anti-aircraft weapons.

Mr. Chester admits drawbacks to his system. The missiles, he says, are expensive, heavy and hard to handle. The loading system he has designed is complicated and, he adds, the whole thing will require a

heavier combat aircraft than now exists. He suggests something like a B-47.

The young scientist, who would like to become a chemical engineer, designed an automatic firing system because, he said, supersonic speeds do not give the pilot enough time to aim and fire manually. He designed the casing, propellant, warhead and loader of the rocket after much computation and experimentation.

Science News Letter, March 3, 1951

For other descriptions of work of STS winners, See SNL, Feb. 24.

ENGINEERING

House of Molasses

► A HOUSE of molasses is not just one man's dream—such a house has actually been built with a molasses driveway leading up to it.

Dehydrated molasses is the basic ingredient in the new building material. Heavy residual oil acts as the catalyst to turn it into a plastic, reports George W. Rappleyea, its inventor.

Mixed with clay and sand, a strong plastic adobe building brick is produced. Combined with clay, pulp or fiber, it creates a durable facing material that can be sprayed on. The basic product, of molasses and heavy oil, is good for paving streets and roads, playgrounds, tennis courts and landing strips.

First step in the production of Plas-mo-falt, as Mr. Rappleyea has dubbed this new molasses plastic, is to completely dehydrate the molasses. First the blackstrap molasses is forced by a high pressure pump through an atomizer into a drying chamber. Here within a few seconds the molasses particles

surrender their moisture to form small grains of dried molasses.

This dehydrated molasses is suitable for cattle feed, but is also the basis of a durable building material.

A building of this plastic adobe brick costs only one-third to one-half as much as a similar edifice of ceramic brick, claims Mr. Rappleyea. The brick insulates against both heat and sound, is fireproof, insect proof and can be painted or plastered.

A liquid form of this material can be applied with a spray gun under pressure for four cents a square foot, the inventor figures. An attractive Spanish-type home using this material can be built for as little as \$150 a room, exclusive of plumbing and electrical costs.

Much of the material for these building blocks can be secured locally, thus keeping the cost to a minimum. Sand and clay are usually readily available. If an oil field is near, crude oil right from the producing wells can be mixed with the dehydrated

molasses. For buildings on distant islands, heavy fuel oil from the ship's bunker fuel oil tanks can be employed.

Science News Letter, March 3, 1951

HORTICULTURE

Predict Picking Date For Fruit Crops

► FORECASTING the ripening date of fruit crops such as apricots, prunes and pears is getting to be almost as accurate as predicting an eclipse.

Apricot picking time, for example, can be forecast with certainty within four days, using a mathematical formula, states Reid Brooks, of the University of California Agricultural Experiment Station.

During a 17-year period, all predicted apricot maturity dates were spotted within four days. Almost equally successful have been forecasts of prune and pear ripening dates.

By knowing in advance the approximate date of crop maturity, the fruit grower can plan to share his labor and make other necessary preparations for harvest well ahead of time, Mr. Brooks pointed out.

The mathematical formula is based on the number of heat units the trees have accumulated within the first six weeks after full bloom. A heat unit is one degree Fahrenheit per day above a given base temperature of 45 degrees.

Science News Letter, March 3, 1951

AERONAUTICS

New Helicopter Has Two Rotors in Tandem

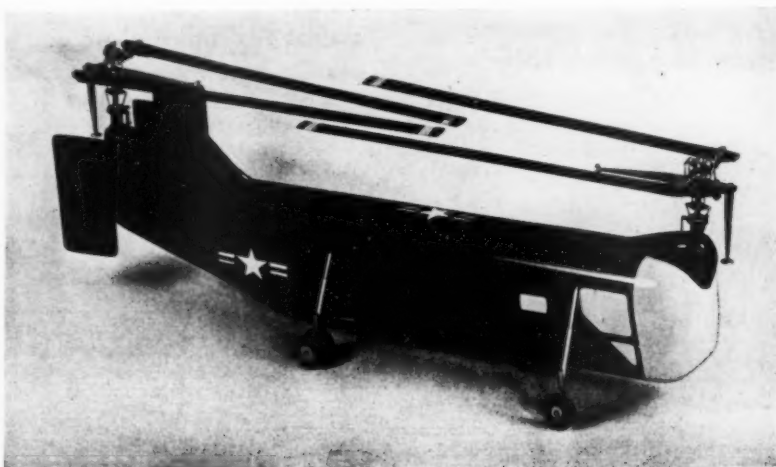
► THREE helicopters of the tandem-rotored type are under construction by the Bell Aircraft Corporation. They are designed particularly for anti-submarine warfare and are being built for the U. S. Navy.

The more familiar helicopter has but one set of rotating propeller blades to provide both lift and forward motion. However, two-rotored helicopters are in use, and even three-rotored craft have been developed. This tandem-rotored helicopter marks Bell's first departure from the single rotor type.

The Bell Aircraft Corporation was awarded this contract after winning a Navy anti-submarine helicopter competition last summer. The rotors of the Bell craft are at forward and rear ends of an elongated body. They are interconnected and power is supplied by a Pratt and Whitney R-2800 engine.

In the new helicopter, basic Bell rotor system principles are incorporated, particularly the rigid two-bladed rotors and an automatic stabilizing device. Rotor blades can be folded to a position over the body to aid in the transportation of the aircraft on an aircraft carrier or other type of vessel.

Science News Letter, March 3, 1951



TANDEM-ROTORED—This unconventionally designed helicopter has its rotors folded so as to occupy less space on the deck of a carrier. This is an artist's conception of how the new helicopter will look.

CHEMISTRY

Wood Alcohol Can Be Made Drinkable

► **POISONOUS** wood alcohol or methanol can now be changed into half as much of the drinkable kind, ethyl alcohol or ethanol, by a new chemical process developed by U. S. Bureau of Mines chemists.

This new chemical method is not expected to have any effect on the price of whiskey, but it does interest chemists who expect to adapt the new reaction to making other new products.

In the new process worked out by Irving Wender, R. A. Friedel and Milton Orchin of the Bureau of Mines synthetic liquid fuels office, synthesis gas, which is a mixture of hydrogen and carbon monoxide, combines with wood alcohol when heated under pressure with the help of cobalt. This is similar to the Fischer-Tropsch reaction which makes ethyl alcohol from coal.

Important theoretical and commercial implications are expected from this new method that is made known in a communication to the journal, *SCIENCE* (Feb. 23).

Science News Letter, March 3, 1951

HORTICULTURE

Pollen Kept for Winter In Deep Freezer

► **BEE-COLLECTED** apple pollen can be quick-frozen, kept in a deep freezer for a year—and used successfully next season in the artificial pollination of apple blossoms.

Using this delayed-action method, fruits have been set and matured on several varieties of apples, it is reported by W. H. Griggs, George H. Vansell and J. F. Reinhardt of the University of California at Davis.

Bee-collected pollen has not been used extensively in artificial pollination of orchards because of two main handicaps: (1) it loses viability rapidly, and (2) no quick and effective method of applying it has been developed.

To secure bee-collected pollen in quantities, the University of California scientists set up a perforated screen trap that scraped the pollen pellets from the legs of the bees as they passed through the screen to the hive. With this trap, they could collect as much as two and a half pounds of the pellet pollen in a day from a single colony. This amount greatly exceeds the three to five ounces of pollen dust a person can gather by hand, working steadily during an eight-hour day.

In contrast with hand-collected pollen, life of pollen from the pellets is extremely short. At room temperature it lasts only a few hours. In a cold storage it may be good for as much as two or three weeks—but this may not be long enough for practical use.

To prolong this period, the University of California researchers resorted to quick freezing in the field as the pollen was col-

lected. At the laboratory they stored it in a deep freezer, maintaining a temperature of minus 51 degrees Centigrade in the container by the weekly addition of 40 pounds of dry ice.

In laboratory tests, the quick frozen samples gave germination as high as 96% after being stored for 12 months.

Field trials made in 1950, using the same orchard from which the pollen was originally collected in 1949, confirmed the laboratory findings.

This increase in stability of the bee-collected pollen should assure its future use in artificial pollination, say the three scientists.

The second hurdle yet remains to be overcome—a quicker and more economical method than hand brushing to do the artificial pollination. Studies on this second phase are now in progress at Davis.

Science News Letter, March 3, 1951

HORTICULTURE

Cultivate Crops Even If Weed-Killers Are Used

► **FARMERS** should cultivate their crops even if they control weeds by chemicals.

Tests on corn for three years by Connecticut Agricultural Experiment Station scientists show that in a hot dry summer like 1948 cultivated plots yielded over 60 bushels per acre, compared with only slightly more than 15 bushels for uncultivated crops with weeds controlled by 2,4-D. In an ideal corn year, like 1950, the difference was much less, with the chemical control plot lagging only 15 bushels behind the cultivated crop.

The cultivated corn was better quality, too. But cultivation can be overdone, the scientists say.

Science News Letter, March 3, 1951

INVENTION

You Can Take Patented Sleep in Bathtub Now

► **YOU** can sleep in the bathtub in safety and comfort, or you can take an invigorating steam bath, with a bathtub "accessory" on which the government has issued a patent.

This accessory includes a pad to fit the bottom of the tub, an adjustable inclined pillow for a head rest, elongated wings to fit both sides of the tub, and two arm rests.

For steam baths there is a flexible cover of waterproof fabric that is attached to the upper edges of the side pads, with an opening at the head end to fit around the neck of the user.

The pads may be of the inflatable type, made of air-tight rubber or rubberized fabric. A less private use for the invention is as an outdoor pad, suitable for use on the beach or lawn. Inventor is Walter C. C. Burton, Columbus, Ohio. Patent 2,541,029 was awarded to him.

Science News Letter, March 3, 1951

IN SCIENCE

ENGINEERING

Power Forecast Based on Light Intensity Record

► **CONTINUOUS** record of the amount of light from the sky, made by a new meteorological instrument, will enable electric light companies to forecast power needs more accurately than can be done otherwise. The instrument records daylight intensity under various weather conditions.

This is a major concern to power companies, since there is a direct relationship between light intensity and power load. Studies show that a cloudy day with no sunshine adds about 40,000 kilowatts to the light load, a very humid day in summer adds twice as much and a clear cold day in winter requires an additional 50,000 kilowatts.

The new instrument, called an illuminometer, is a development of the Bendix Aviation Corporation in cooperation with the U. S. Weather Bureau. Operating on the photoelectric principle, it employs two units including a sensing element on the roof of a building and a recorder inside. The recorder contains a chart on which a permanent record is made.

The photoelectric cell in the sensing unit varies its electrical output proportionally with visible sunlight. Filters over the cell neutralize heat effect, and limit the light effect to that seen by the human eye.

Science News Letter, March 3, 1951

METALLURGY

Process for Making Low-Carbon Steel

► **A PROCESS** for making stainless steels of low-carbon content brought Robert M. Briney, Douglaston, N. Y., patent 2,542,177, with rights assigned to Union Carbide and Carbon Corporation of New York City. It is for steels containing 12% or more of chromium, and nickel if wanted. Because of low-carbon content, they are steels of improved quality.

This improved method of making stainless steels follows present methods of forming a bath of molten steel containing chromium but differs in the treatment of the slag formed on the top of the bath by using a ferrochromium containing silicon to reduce and recover the oxides in it. The process shortens the time required to make a unit quantity of chromium steel and lessens the cost.

Science News Letter, March 3, 1951

SCIENCE FIELDS

ENTOMOLOGY

Fleas Live In Animal Nests

► WHERE do fleas come from? They come from the nests and burrows of the animals on which they feed. This suggestion is put forth by Dr. F. C. Evans of the University of Michigan and Dr. R. B. Freeman of University College in London. The scientists captured small wild animals from woods near Oxford University, England, and removed and counted all their fleas. When some of the same animals were recaptured 24 hours later, the same number of or more fleas were removed from them, the scientists report in the *ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA*.

Science News Letter, March 3, 1951

PSYCHIATRY

Nude Parents Cause Child's Emotional Upset

► PARENTS should not go about the house nude in the hope of sparing their children from being too inhibited.

So Dr. Mary O'Neil Hawkins, New York psychoanalyst, told the meeting of the American Orthopsychiatric Association here recently.

Not only does this practice fail to spare the children emotional injury, it can actually do them great harm, Dr. Hawkins told her colleagues. It would be different if the children saw other people going about without clothing. But when it is only their parents that they see without clothes, the experience may be very disturbing.

Neither should children in primary schools be given "enforced freedom" to select what they want to study, Dr. Hawkins said. Often children have a fear or dislike of learning something new. A little force (not too much) or pressure on the part of the teacher will overcome this fear and the child will develop interest in the new subject.

These and some other modern ideas on the bringing up of children are thought by parents and educators to be applications of psychoanalytic theory. Actually they are based on a misunderstanding and misinterpretation of Freud's earlier ideas, Dr. Hawkins explained.

Freud's great contribution, early in his career, was the finding that many of the psychological difficulties of adults can be traced to emotional hurts incurred in childhood. Later Freud stressed the importance of the development of the super-ego, or conscience, and the need to redirect ag-

gressive and other socially harmful impulses into useful directions.

Today, parents have been scared into going to extremes to keep their children from any possible psychological hurts. In so doing they fail to prepare the children for life in our present-day society.

Science News Letter, March 3, 1951

MEDICINE

Clue to Lung Edema In Hypothalamus Injury

► A CLUE pointing to injury of a special part of the brain as the cause of lung edema has been discovered by Dr. Harry D. Patton and Joseph E. Gamble, graduate student, at the University of Washington Medical School, Seattle.

Victims of lung edema are said to "drown" in their own body fluids. The disease occurs when blood and water from the blood gather in the lungs. This causes a "waterlogging" that is often fatal.

Dr. Patton has succeeded in causing edema in the lungs of rats by injuring a specific point in the hypothalamus, deep in the brain. This area controls heart activity and other vital functions.

The research is believed to provide the first clear instance where lung edema has been traced to a definite part of the brain.

"Lung edema is a puzzling complication caused by a wide variety of body injuries," Dr. Patton explained. "We hope our work may lead to an understanding of why head injuries often result in certain types of edema."

Dr. Patton found that injuries of pinpoint size, administered in a certain part of the hypothalamus, caused the lungs of the rats to fill with fluid and swell to twice their usual size. Frequently, death resulted within a matter of minutes.

Science News Letter, March 3, 1951

MEDICINE

Cancer Transplanted To Aid Cure Search

► SEARCH for better chemical weapons against cancer will be aided by a new method evolved at Jackson Memorial Laboratory, Bar Harbor, Me., for transplanting cancers or other tumors. By this method tumors can be transplanted successfully from one animal to another of different hereditary background.

The method was developed by Drs. Nathan Kaliss and George D. Snell, research associates at the laboratory. They found that by first injecting dried, powdered normal mouse organs, such as liver, kidney and spleen, and then injecting live tumor, the transplanted tumor will grow even when it comes from a mouse of different hereditary strain than the recipient mouse.

Previously, transplanted tumors have

been made to grow under similar conditions by first giving a series of injections of dried, powdered tumors followed by inoculations of live tumor.

Transplantable tumors are important in research concerned with the effects of different chemicals on cancer tissue. Chemicals believed capable of destroying cancers are first tried on transplanted tumors in mice and fertilized chicken eggs, then on spontaneous tumors in mice and, if successful results have been obtained, finally on cancer patients.

Transplantation studies with tumors also have importance in attempts to learn more about the basic differences between cancers and normal tissue growth.

Science News Letter, March 3, 1951

MEDICINE

Progress Reported In Treating Bone Tumors

► SURGEONS have made considerable progress in the past half century in treating cancer-like tumors of the bone. At the turn of the century such tumors were treated by amputation. Today the patient can be helped as much by less mutilating methods, Dr. Marcus J. Stewart of the Campbell Clinic, Memphis, Tenn., pointed out at the recent meeting of the American Academy of Orthopaedic Surgeons. Many people, incidentally, confuse the word tumor with cancer. Not all tumors are cancers. The word tumor comes from the Latin meaning swelling. There are many kinds of tumors. The bone tumors Dr. Stewart discussed are called giant cell tumors because in the tumors are certain large cells with many nuclei. These cells are known as giant cells.

Giant cell tumors can attack any bone in the body. They occur just as often in men as in women and usually in young people between 20 and 30 years of age. The tumors are found most frequently in the regions of the knee, shoulder and wrist. In the beginning the chief symptom is pain, and later there is swelling about the affected area.

The symptoms, Dr. Stewart said, are usually noticed six months to two years before the patient consults a physician. Such tumors, when left alone, have the tendency to turn cancerous in a certain percentage of cases.

The most successful and the most universally accepted method of treatment, Dr. Stewart said, is to cut out that part of the bone where the tumor is located. A less radical method is carefully to scrape all of the tumor tissue out of the affected bone and then fill the cavity with chips of bone taken from another part of the patient's body. He said his study showed that these methods brought better results than that attained by irradiation.

Science News Letter, March 3, 1951

OCEANOGRAPHY

Probe Pacific Depths

Floor of the Pacific, which has been supposed to be quiet and unchanging, now found to have been the scene of tremendous activity. Mountain range discovered.

By MARJORIE VAN DE WATER

► THE supposedly quiet, unchanging depths of the Pacific Ocean floor have been the scene of tremendous activity not so long ago, geologically speaking.

Mountain ranges have been pushed up from the ocean bottom, volcanoes have erupted, mountain peaks have sunk into the sea and super-skyscrapers have been patiently built up, inch by inch, by tiny marine organisms to a height that makes the Empire State Building seem microscopic.

These were a few of the varied findings of a joint expedition of the Scripps Institution of Oceanography, the U. S. Navy Electronics Laboratory, and three other scientific institutions under the leadership of Prof. Roger Revelle. On this expedition the Pacific was explored from the stratosphere above 100,000 feet altitude down to 20,000 feet below the surface of the sea.

Perhaps the most important discovery of the expedition was an undersea mountain range. This extends at a 120-degree angle to the Hawaiian Island chain for a distance of more than a thousand miles, the highest summit reaching 14,000 feet from the sea floor, but submerged under about 2,700 feet of the Pacific's waters.

Peaks Flat on Top

Most of the peaks are flat on top. This shows that they were once eroded or worn off by wave action in shallow water. That was before they had sunk to their present depths.

Further evidence that these submerged peaks were once in shallow water is pro-

vided by specimens dredged from their tops—clam shells, snails and sea urchins, reef coral. These creatures cannot live in the ocean depths; they are shallow-water organisms.

Could they have been submerged by rising waters caused by an accumulation of sediments on the ocean floor? The answer to this is given by measurement of the thickness of the sediments made by Prof. Russell Raitt, one of the members of the expedition. Seismic refraction techniques showed that the sediments are from 1,500 feet to 3,000 feet thick. So this would not account for thousands of feet of sea water over the top of the highest peaks.

Volcanic Activity

Cores drawn up from the ocean bottom by a recently improved technique showed that just a few feet beneath the surface of the sediments you can often find layers of volcanic ash. That means that in recent times, speaking geologically, volcanoes have been erupting in the depths of the sea. In each core the ash layers are different in thickness and in depth. Consequently the ash must have been thrown

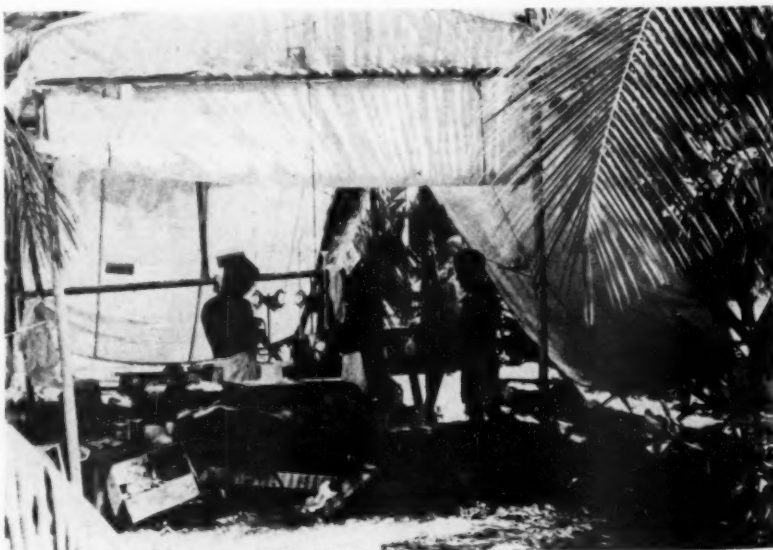
out by different volcanoes at different times.

Bikini Atoll, scene of the atom bomb test explosion, is built on an ancient undersea volcano. So is Kwajalain Atoll. The volcano is topped by a fantastic structure built of the discarded skeletons of coral and other animals. As the volcanoes sank gradually beneath the waves the coral structure kept up with the rising waters, always staying just at the surface. Eventually there arose an underwater skyscraper several thousand feet tall; Kwajalain Atoll is the largest structure ever erected by living creatures.

Coral chunks were found that, like all the rock on top of the sea mounts, were covered with a thick layer of manganese. Now, there is practically no manganese in sea water. So how did thick layers of manganese build up on the sea floor? That is a puzzle to scientists.

Typically, the metal is in the form of round, rough balls, about the size of a walnut, of nearly pure manganese dioxide. Inside the nodules there is always a nucleus of something else. Sometimes it is a pebble of volcanic rock, sometimes the ear bone of a whale or the tooth of a shark. In some cases the teeth are from sharks now extinct.

Another surprising find in the cores drawn up from the deep sea bottom were bacteria. There were as many as 10,000



BIKINI LABORATORY—On this volcano-based coral island, working under primitive conditions and in great heat, specialists sorted the sea water samples taken from the Pacific's depths.

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BIG SNAIL—Showing a layer of manganese accumulated on the shell.

bacteria per cubic centimeter near the surface and practically the same concentration 10 to 20 feet below the surface.

There is little if anything that the bacteria can nourish themselves on in the seabottom muds. So the bacteria may have lain there in a state of practically suspended animation.

When the scientists brought them to the surface in their coring apparatus and put them into a culture medium, they started to grow and multiply! These same bacteria were alive long before the first man walked the earth. After several million years in the mud of the sea floor, they still live.

With a new instrument developed by William Van Arx of the Woods Hole Oceanographic Institution, called the "jog-log," measurements were made every two hours of the ocean currents. Information about the currents near the equator was surprising.

The new instrument works on the principle that the motion of sea water through the earth's magnetic field sets up an electrical current. This current can be measured

by trailing two electrodes astern of the ship.

The northern equatorial current, between 10° and 15° north of the equator, does not flow directly from east to west, it was found. Instead it flows toward the southwest. And the equatorial counter-current, which has been supposed to flow directly west to east, actually flows about 40° south of east. Farther south, within 6° of the equator, the direction of the current again swings around to the southwest.

Prof. Revelle gives two possible explanations for these new findings, both representing new ideas in oceanography.

Either the currents are sinuous, he deduces, and meander across the ocean like a tortuous river. Or else there is a series of giant eddies in the equatorial region, with diameters of a thousand miles or more.

Another means of bringing knowledge from the deep was an instrument in the form of a two-pronged spear. With this a series of temperature measurements was made. These twin measurements made it possible to calculate how rapidly the earth is cooling off, that is, how fast the heat is flowing from the earth's interior through the rocky crust.

Science News Letter, March 3, 1951

ORNITHOLOGY

Bird Believed Extinct Discovered in Bermuda

See Front Cover

► THE DISCOVERY of the Bermudian cahow—a bird widely believed extinct since 1625, was reported by The American Museum of Natural History.

Proof of the existence of this mysterious oceanic bird, a petrel, was uncovered during a recent search in Bermuda conducted by Dr. Robert Cushman Murphy, Chairman of the Department of Birds at the museum, Louis L. Mowbray, Curator of the Bermuda Aquarium, David B. Wingate, and Mrs. Murphy.

The group has captured five live cahows and counted at least 17 burrows in rocky crevices where the cahow nests, thus indicating that more still survive, Dr. Murphy reported. Other examples of unknown number were heard and seen at night over the nesting islets.

The cahow is a rather docile bird, about the size of a pigeon but possessing longer wings. It is grayish-brown on top and has a white underbelly. He also said that its curved beak is black and its eyes are ringed by black feathers.

It has been a prevalent belief, according to Dr. Murphy, that the cahow became extinct largely because of a shortage of food in Bermuda between 1609 and 1621. He stated that history records that groups

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of settlers were sent to Cooper's Island at the western end of Bermuda in these years and the settlers gorged themselves to such an extent on the then plentiful birds that some colonists died from the effects of over-eating. It is quite remarkable, in fact, he pointed out that any cahows have survived after the terrible, famine-induced slaughter they suffered during that early period.

During this period, not only the birds were killed for food, but also their eggs were eagerly sought out, according to Dr. Murphy, who added that the eggs, judging by the flavor of those of related petrels, might be considered rather good eating.

The first cahow was sighted by the group in the cliffs of the Bermudian islets off Castle Harbor. Having discovered twigs in the entrance to one of the cliff burrows, the group had climbed into the limestone crevice and then Mr. Mowbray, using a bamboo pole equipped with a noose, succeeded in fishing out the first cahow. At this point, also, the cahow was photographed for the first time in history.

While the party was spending a night on the islet, another cahow fluttered down from above to relieve its mate on the egg. This bird was picked up and passed from hand to hand for some time for close inspection. Dr. Murphy described the bird as taking this inspection in a most docile manner, apparently quite unafraid of the presence of human beings. When freed, it unhurriedly crawled into its burrow.

These birds and other cahows found later were released again after they had been banded with U. S. Fish and Wildlife Service rings.

Dr. Murphy pointed out that one of the most distinctive traits known about the cahow is its homing instinct, which apparently leads it back to its nest in tiny crevices at night after flying perhaps 125 miles or more out to sea after food.

"The fact that the cahow can find Ber-

muda again and return to its burrow after these long flights is even more remarkable than the migratory flight of the golden plover, which flies from the shores of the Arctic to the Plains of Patagonia," Dr. Murphy said. The plover flies the length of two continents, through different climatic zones. The cahow returns across waters which are uniform and relatively featureless for hundreds of miles around Bermuda, itself only one-quarter the size of Staten Island.

Dr. Murphy added that it is believed that the cahow stays out in the open ocean for a period of about seven to eight months during the year and then returns to dry

land for its forty-day hatching period. After being hatched the young are probably fed for about three months, and are then left alone to starve until they leave land, which is in June.

It is also believed, he added, that the main food of the cahow is squid which is obtained far out at sea.

Despite its survival of the centuries-old threat to its existence from the famine-driven early colonists, however, the cahow still faces another more modern peril in the presence, within its Bermuda stronghold, of the introduced brown rat, according to Dr. Murphy.

Science News Letter, March 3, 1951

PSYCHOLOGY

Menticide Called Crime

Psychologist urges that intervention in the human mind be declared an international offense against rights of man. Freedom of speech implies freedom not to listen.

► THE United Nations is urged to add the crime of "Menticide" to that of genocide as international offenses against the fundamental rights of man.

The proposal comes from a New York psychologist of Dutch origin who spent two terrible years ministering to mental and physical ills under the oppression of the Nazi tyrant.

"Menticide" is the name given by Dr. Joost A. M. Meerloo to the political intervention in the individual human mind. In menticide, a powerful tyrant synthetically injects his own thoughts and words into the minds and mouths of the victims he plans to destroy.

Menticide, declares Dr. Meerloo, is a far worse threat to mankind than is genocide. Genocide is the direct physical destruction of another racial or national group. Menticide is an attack on man's mind, his sovereign will and conviction.

Menticide is now the stock-in-trade of all police states. Use is made of the most modern psychiatric techniques to impose the will of the dictator on his victims. Against the individual, use is made of drugs, narcohypnosis, brain surgery and the abuse of psychiatric procedures to extort confessions and "convert" the victim to the dictator's ideology.

Advantage is taken of any neurotic traits of the individual and his hidden feelings of guilt.

Against the public as a group, weapons are mass intoxication through terror and panic and mass hypnosis.

Measures of immunization and protection against menticide are suggested by Dr. Meerloo in a report to the current issue of the AMERICAN JOURNAL OF PSYCHIATRY (Feb.).

Best protection for the individual, he says, would be training in autohypnosis. The hypnotic state, he explains, can offer immunity not only to physical pain and hunger, but to psychological intrusion. During the war, underground workers were given training in autohypnosis to protect them in case they fell into enemy hands.

But as a practical measure, this would be almost impossible, Dr. Meerloo realizes.

"We cannot all become Yogi!" he says. Another defense would be for us all to be psychoanalyzed and made aware of hidden guilt and defense mechanisms. But this, too, is impractical.

And so the only safeguard man can actually rely on in the face of this new spiritual threat is social protection.

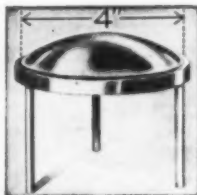
Articles 18 and 19 of the United Nations' Universal Declaration of Human Rights deal with the right to freedom of thought, of opinion, and of expression.

What is now needed is a parallel provision declaring man's right not to be compelled to listen.

Science News Letter, March 3, 1951

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Pussy Willow

➤ WHAT the first robin is in the animal world, pussy willows are in the world of plants—the universally recognized early heralds of spring. There are other animals and plants that sound the very first notes—though not much earlier than these, at that—but robin and pussy willow recollections date back to childhood, and are known by everyone. They will, therefore, hold their primacy so long as our race has any traditions.

There are many kinds of pussies borne by as many kinds of willow; for the name of the willow tribe is legion, ranging from the humble, foot-high prairie willow with its tiny, glistening catkins, to the great gnarled and spreading trees of the black willow, or the weeping willow, imported from Europe, which we see in cemeteries and on lawns. The largest and finest pussy willows, which now have a considerable sale at florists' shops, are those of the goat willow, a native of Europe and Asia.

These harmless, charming, furry willow kittens so beloved of children everywhere, are in reality the flower clusters of the willow. Unlike most trees, willows and their relatives are bisexual, that is, male and female flowers are borne on separate individuals. The necessity for transferring pollen for some distance, plus the fact that

wind has to be depended on in the absence of any reliable insects at this time of year, accounts for the enormous numbers of flower clusters on every tree—for each catkin consists of from 20 to 100 separate, primitive flowers.

It is the business of the females to catch the pollen that is shed into the air in invisible clouds by the yellow male catkins on other trees. After fertilization is thus brought about, the seeds of the willows are launched on little cottony parachutes, much like those of the cottonwood, but less woolly and hence less troublesome.

If you have a vase of pussy willows, either from the florist's or obtained in the old-fashioned natural way, you can easily establish a willow bush of your own, and thus be sure of an abundant supply of catkins every year. Just let them stand in water until they throw out roots, and then plant them in your back yard, or, if the ground is still frozen, in a pot of sand until the soil outdoors thaws out. Willows are the toughest of plants, and will grow even in the shadow of a railroad yard or a blast furnace.

Do this and in a couple of years you will have a thrifty willow bush that will bear a crop of gray velvet fairy kittens every spring.

Science News Letter, March 3, 1951

GENERAL SCIENCE

College Laboratories Available for Defense

➤ MORE than a thousand college and university laboratories will be available for defense research and development projects. Plans to discover the kinds of jobs they can do have been announced by Dean Athelstan F. Spilhaus of the University of Minnesota, chairman of a sub-committee of the Engineering College Research Council.

The survey, which will study the status of research facilities and personnel in the colleges, has the cooperation of the Defense Department's Research and Development Board.

College and university research facilities will become more available for defense work as student enrollment is depleted by the draft. The schools are expected to seek defense contracts in an effort to hold their teaching staffs together during the emergency.

Along this line, Dean Spilhaus emphasized that contracts should not be limited to a small number of schools. He declared that the Research and Development Board is certain that the nation's research needs will compel the intelligent use of every available facility and skill. This project is designed to provide the information by which defense research contracts may be channeled to institutions, both large and small, on an equitable and rational basis.

The information will be available soon after April 1. The project covers a broad list of engineering and scientific fields.

Science News Letter, March 3, 1951

Makers of good apple juice often use two or more varieties of apples in order to obtain a proper sugar-acid ratio.

Congress in 1843 appropriated money to build the first telegraph line in the world; it extended from Washington to Baltimore, and was later extended to New York by private funds.

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A. I. B. S. BULLETIN: News and Views on the Biological Sciences, Vol. I, No. 1—Clarence J. Hylander, Ed.—*American Institute of Biological Sciences*, 16 p., paper, \$2.00 a year. Replaces the "Newsletter" in "Bringing to Biologists 'News and Views in the Biological Sciences.'"

ACTIVE CARBON—John W. Hassler—*Chemical Publishing Co.*, 384 p., \$7.00. Intended for research workers in industry, this book includes various applications of active carbon in industrial processes.

THE ARMY ALMANAC—Armed Forces Information School—*Govt. Printing Office*, 1009 p., \$3.00. Gathering into a single volume useful data about the Army from its establishment up to 1948.

BIRDS OF THE ACARY MOUNTAINS, SOUTHERN BRITISH GUIANA—Emmet R. Blake—*Chicago Natural History Museum*, 55 p., paper, 75 cents. Based on a collection of 500 specimens made by the author.

THE BOOK OF AMERICAN CLOCKS—Brooks Palmer—*Macmillan*, 318 p., illus., \$10.00. Based on Wallace Nutting's book "Furniture Treasury" and containing over 300 illustrations by Nutting.

BORDERLANDS OF SCIENCE—Alfred Still—*Philosophical Library*, 424 p., \$3.75. Because of its extensive documentation and bibliography, this book will be of interest to many even though they will not agree with the conclusions about magic, hypnotism, clairvoyance, telepathy, levitation, divining rods, etc.

BRITISH MEDICAL BULLETIN: Vol. 7, Industrial Hazards—John Rogan—*Medical Department, The British Council* (Oxford University Press), 144 p., illus., paper, \$2.00. "The doctor in industry is in a unique and happy position for he has the opportunity to practice clinical and preventive medicine as they should be practiced, together."

THE CHILD WITH CEREBRAL PALSY—Children's Bureau and Office of Education—*Gov't Printing Office*, 13 p., illus., paper, 10 cents. Prepared especially for parents to aid in the care of these sick children and to dissipate some of the unfounded fears.

CHOICE AND CARE OF FILMS IN FUNDAMENTAL EDUCATION—Peter Brinson—*Olen Press*, 21 p., paper, approx. 14 cents. Third in a series of educational pamphlets prepared with UNESCO.

CHOICE AND CARE OF FILMSTRIPS IN FUNDAMENTAL EDUCATION—George Seager—*Olen Press*, 19 p., paper, approx. 14 cents. Fourth in a series of educational pamphlets prepared with UNESCO.

CIVIL DEFENSE SUPPLEMENT TO THE AMERICAN RED CROSS FIRST AID TEXT BOOK—American National Red Cross—*Blakiston*, 47 p., illus., paper, 10 cents. Does not contain complete first aid information; it is to be used with ARC first aid textbook.

CLOUD PHYSICS—D. W. Perrie—*Wiley*, 119 p., illus., \$4.50. For meteorologists, aviators, and for those who just like to look at the clouds.

COMPLETE HOME REPAIR HANDBOOK—Emanuel Stier—*Prentice-Hall*, 1617 p., illus., \$8.85. A how-to-do-it book covering all sorts of upkeep work around the home.

CONTEMPORARY LIGHTING IN MODERN AND TRADITIONAL INTERIORS—*Illuminating Engineering Society*, 58 p., illus., paper, \$1.00. Studies of lighting and seeing conditions in the home, written in laymen's language.

THE DEMOCRATIC WAY OF LIFE: An American Interpretation—T. V. Smith and Eduard C. Lindeman—*The New American Library*, 159 p., paper, 35 cents. This Mentor book is a new and completely revised edition of one first published by the University of Chicago Press.

THE DEVELOPMENT OF REASONING IN CHILDREN WITH NORMAL AND DEFECTIVE HEARING—Mildred C. Templin—*University of Minnesota Press*, 143 p., \$3.00. Results of a study on 850 pupils in state schools for the deaf, classes for defective hearing and public schools.

DIE DESIGN AND DIEMAKING PRACTICE—Franklin D. Jones, Ed.—*Industrial Press*, 3d ed., 1014 p., illus., \$7.00. Working guide for designers, diemakers, and tool engineers.

DIPLOCAULUS: A Study in Growth and Variation—Everett Claire Olson—*Chicago Natural History Museum*, 93 p., illus., paper, \$1.75. Quantitative methods applied to the study of a rather highly specialized early Permian amphibian.

DIRECTORY OF INTERNATIONAL SCIENTIFIC ORGANIZATIONS—UNESCO, (Columbia University Press), 224 p., paper, \$1.00. Lists organizations under three headings: Basic Sciences, Applied Sciences, and Miscellaneous.

DYNAMIC MOTION AND TIME STUDY—James J. Gillespie—*Chemical Publishing Co.*, 140 p., illus., \$3.75. Presenting a new approach to the subject. The author believes that through experiments he has succeeded in increasing efficiency without antagonizing the worker.

FILM AND FILMSTRIP PROJECTION IN FUNDAMENTAL EDUCATION—Peter Brinson—*Olen Press*, 21 p., illus., paper, approx. 14 cents.

Second in a series produced in collaboration with UNESCO to assist teachers.

THE GIFTED CHILD—Paul Witty, Ed.—*Heath*, 338 p., \$4.00. Chapters by specialists on various aspects of the recognition and education of gifted children, including one by Watson Davis on The Search for Talent in Science.

GRAPHIC SURVEY OF CHEMISTRY—William Lemkin—*Oxford Book Company*, 410 p., illus., paper, 80 cents. Outgrowth of author's "Visualized Chemistry," high school chemistry is brought up to date in concise language.

HOW DOES IT WORK?—School Service Dept.—*Westinghouse Elec. Corp.*—16 p., illus., paper, free to teachers and students. An educational comic book with easy experiments on science to do at home.

HUDSON OF HUDSON'S BAY—J. M. Scott—*Henry Schuman*, 176 p., illus., \$2.50. Biography of a great explorer.

HUMAN ENGINEERING—L. E. Abt, Ed.—*New York Academy of Sciences*, 152 p., paper, \$2.75. Series of papers at a conference held by the section of psychology in May, 1948.

MEDICAL SCHOOL GRANTS AND FINANCES: Part I, Conclusions and Recommendations, 48 p.; **Part II, Financial Status and Needs of Medical Schools**, 85 p.; **Part III, Public Health Service Grants**, 58 p.—*The Surgeon General's Committee—Gov't Printing Office*, paper, 20 cents each.

MINING AND MILLING METHODS AT SAN XAVIER MINE THE EAGLE-PICHER MINING AND SMELTING CO. PIMA COUNTY, ARIZ.—Grover J. Duff and Charles A. Kumke—*U. S. Bureau of Mines, Information Circular 7581*, 13 p., illus., paper, free upon request to publisher.

MODEL CONTROL BY RADIO—Edward Safford, Jr.—*Radcraft*, 112 p., illus., paper, \$1.00. For radio amateurs. Possession of a ham license is helpful and, for control operation on certain frequencies, a necessity.

THE NATIONAL RESEARCH COUNCIL REVIEW 1950—Committee of the Privy Council on Scientific and Industrial Research—*Edmond Cloutier*, Ottawa, 278 p., illus., paper, approx. 75 cents. Describes the Council's work for 1949 with some notes on early 1950 work.

NEW HORIZONS IN THE EAST—Consultative Committee on South and Southeast Asia—*H. M. Stationery Office* (British Information Services), 40 p., illus., paper, free upon request to the publisher, 30 Rockefeller Plaza, New York. Describing the Colombo plan for cooperative economic development.

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1950 FACTS ABOUT NURSING: A Statistical Summary—*American Nurses' Association*, 103 p., paper, 50 cents.

NINTH SEMIANNUAL REPORT OF THE ATOMIC ENERGY COMMISSION—Atomic Energy Commission—*Govt. Printing Office*, 158 p., paper, 40 cents. Contains a section on civil defense.

ONE-WAY STREETS—*Highway Research Board*, 31 p., paper, 60 cents. A panel discussion.

OUTLINE OF UPLAND GAME BIRD MANAGEMENT—Elizabeth B. Beard and Warren W. Chase—*Overbeck Co.*, 143 p., paper, \$3.00. Fourth of a series of teaching aids in wild life management from the School of Natural Resources, University of Michigan.

OUTLOOK FOR DEVELOPMENT OF A TUNA INDUSTRY IN THE PHILIPPINES—Herbert E. Warfel—*Govt. Printing Office*, 37 p., illus., paper, 20 cents. Tuna resources represent the largest opportunity for the expansion of the fisheries of that nation based on a two and a half year study.

PICTURE ENCYCLOPEDIA, *Research Book Co.*, 162 p., illus., paper, \$25.00. The 24,000 illustrations are arranged in groups intended to be helpful to puzzle contestants.

THE PRACTICE OF SANITATION—Edward S. Hopkins and Francis B. Elder—*Williams and Wilkins*, 423 p., illus., \$7.50. A textbook for students in sanitary engineering.

THE PRECERAMIC HORIZONS OF NORTHEASTERN OKLAHOMA—David Albert Baerreis—*University of Michigan Press*, 121 p., illus., paper, \$1.00. Describing three periods parallel at least in part to the Ozark Bluff-Dweller culture.

THE PRINCIPLES OF CLOUD-CHAMBER TECHNIQUE—J. G. Wilson—*Cambridge University Press*, 131 p., \$2.75. Technical book for scientists who plan to use cloud chambers.

THE PRINCIPLES OF HEREDITY—Laurence H. Snyder—*Heath*, 4th ed., 515 p., illus., \$4.75. Brought up to date by extensive revision and rewriting.

PROCEEDINGS OF THE INDIANA ACADEMY OF SCIENCE—Alton A. Lindsey, Ed.—*State Library*, Indianapolis, Ind., 309 p., illus., paper, \$3.00.

RED CROSS HOME NURSING: Civil Defense Supplement—*American National Red Cross*—10 p., paper, free upon request to publisher. What you can do in case of an atomic bomb attack.

REPORT OF THE CHIEF OF THE BUREAU OF ANIMAL INDUSTRY: AGRICULTURAL RESEARCH ADMINISTRATION, 1950—B. T. Simms, Chief—*Gov't. Printing Office*, 105 p., paper, 25 cents.

REPORT ON THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDED JUNE 30, 1950—Smithsonian Institution—*Govt. Printing Office*, 141 p., paper, available from Smithsonian Institution.

THE RISE OF SCIENTIFIC PHILOSOPHY—Hans Reichenbach—*University of California Press*, 330 p., \$3.75. Intended to show that philosophy has proceeded from speculation to science.

SNOWY: The Story of a Polar Bear Cub—Jan Vlasak and Josef Seget—*Henry Schuman*, 87 p., illus., \$2.50. The story is told in charming photographs of a very young cub at the Prague zoo in Czechoslovakia under German occupation when breeding of the precious animals had to be kept up at home.

STATEMENT ON RACE—Ashley Montagu—*Henry Schuman*, 172 p., \$2.00. An extended discussion in plain language of the famous UNESCO declaration.

A STRUCTURAL-EFFICIENCY EVALUATION OF TITANIUM AT NORMAL AND ELEVATED TEMPERATURES—George J. Heimerl and Paul F. Barrett—*National Advisory Committee for Aeronautics*, Technical Note 2269, 16 p., paper,

AERONAUTICS

New Use for Helicopters

► HELICOPTER take-offs and landings on a relatively small platform over the deck near the stern on a 10,000-ton ocean vessel are being made in the English Channel, it was revealed in London. The purpose is to determine the possibility of using helicopters to protect convoys on the ocean against enemy submarines.

The idea is that helicopters based on merchant ships might be used to defend convoys against submarines, making it unnecessary to have an aircraft carrier vessel accompany each convoy. The helicopters would take off from the deck of the merchant vessel and search the sea-lanes near the convoy for underwater enemy craft.

The trials being made in the English Channel are with a fleet supply ship on which a strengthened steel platform has been constructed near the stern. The helicopter in use is the S.51. Its whirling rotor blades, with their span of about 50 feet,

free upon request to publisher, Washington.

UNESCO: Five Years of Work—U. S. *National Commission For UNESCO*, 18 p., paper, free upon request to publisher, U. S. Department of State.

WATER RESOURCES LAW—*Water Resources Policy Commission*—Govt. Printing Office, 777 p., paper, \$2.25. Volume three of the Commission's Report to the President.

THE WHITE CONTINENT: The Story of Antarctica—Thomas R. Henry—*Sloane*, 257 p., \$3.75. The author, who is a newspaper writer, accompanied the Navy expedition "High Jump" under Admirals Byrd and Cruzen.

WORKBOOK FOR WEATHER FORECASTING—E. S. Pulk and E. A. Murphy—*Prentice-Hall*, 66 p., illus., paper, \$5.00. To aid the student in applying his theoretical knowledge. Contains a packet of maps.

YOUR BLOOD PRESSURE AND YOUR ARTERIES—Alexander L. Crosby—*Public Affairs Committee, Inc.*, 31 p., illus., paper, 20 cents. Precautions against and rules for the care of hypertension.

Science News Letter, March 3, 1951

actually overhang parts of the flight platform when the aircraft is on it.

Considerable skill is required to land a helicopter on such a small platform, particularly in a rough sea. Tests have been carried out in all sorts of weather and safe landings have been made under heavy pitching and rolling.

The helicopters proposed for use for this purpose would carry small bombs and depth charges, or a number of sonobuoys. These buoys are dropped in the water to pick up vibrations from deep sea submarines equipped with schnorkel "breathing tubes" which enable them to remain under water for long periods.

Science News Letter, March 3, 1951

Carbon monoxide, the poisonous gas resulting from incomplete burning of materials containing carbon, is eventually converted in the atmosphere into harmless carbon dioxide.

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✿ **OILING COMB**, recently patented, applies scalp and hair dressing in regulated amounts while the hair is being combed. The back of the comb is a tubular reservoir to hold the material, and dispersal is controlled by a simple pressure device.

✿ **NUT GATHERER**, for picking from the ground such nuts as pecans, is a rolling drum with spring loops on its surface which grasp the nuts as the machine is rolled over them. Fingers on this recently patented device release the nuts into a container.

✿ **FLUORESCENT LAMPS** for buses, which provide plenty of light for comfortable reading, operate on frequencies ranging from 80 to 500 cycles and employ a special circuit. They operate through this circuit from the motor coach alternator.

✿ **LETTERING** device, shown in the picture, enables the amateur to produce professional lettering. The seven-inch-square device slides along a straight-edge while an operator follows guide letters with a



stylus. An arm projecting from the opposite side reproduces them with variations desired.

✿ **ALCOMETER** is a device to determine the "alcoholic" condition of a supposedly drunken driver. The subject exhales through the device and alcohol in the breath reacts

with iodine pentoxide to form free iodine. The amount so formed indicates the percentage of alcohol in the blood.

✿ **GOOSE-QUILL** writing set, made of fine white glazed ceramics, includes a model of a goose standing on a base within which is the receptacle for the ink. It has a small opening in the front of the base through which the writing quill can be dipped or held when not in use.

✿ **ROUGH-SERVICE** ELECTRIC bulb, for use with extension cords in shops and in many other applications, is smaller and sturdier than its predecessor but provides more light. It is a 100-watt affair, developed for use in portable equipment and is made with either clear or inside frosted glass.

✿ **RUNNERS** for a baby carriage, which are permanently attached to the axles and may be used at any time to convert the wheeled vehicle to a sled, consist of skis with framework on inside and outside the wheels. This recently patented device, when over a wheel, has the appearance of an automobile fender.

Do You Know?

Milium is a cloth sprayed with a metal solution which helps prevent loss of heat from the body.

A chemical called *pentachlorophenol* is sometimes used in swabbing decks of U. S. Navy vessels because it is a wood preservative.

The plastic industry is being handicapped by a shortage of *benzol*, a by-product of the manufacture of coke for the steel industry.

About 200 *self-service* gasoline stations for motorists are in operation in the United States; they are forbidden by law or legal ruling in at least 14 states.

"Blooming fencerows" of multiflora roses are growing in favor in many parts of the country because, in addition to serving as fences, they provide a home for birds and beneficial wildlife.

Scouring powders contain cleaning substances which act chemically but the chief ingredient is abrasive material which loosens soiling film and dirt particles mechanically.

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